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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,051	03/30/2004	Shinji Miwa	118943	1413
25944	7590	10/31/2007	EXAMINER	
OLIFF & BERRIDGE, PLC			HUNG, YUBIN	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,051	MIWA ET AL.	
	Examiner	Art Unit	
	Yubin Hung	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 3/30/04.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) 4 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 3/30/04.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - P. 2, second last line: "target region" should have been "target image"

Appropriate correction is required.

Claim Objections

2. Claim 4 is objected to because of the following informalities:
 - Line 9: the leading text "the pixel information correction device including" appears to be extraneous

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 4 recites the limitation "the pixel information correction device" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

6. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

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7. Applicant is advised that should claims 3 and 8 be found allowable, claims 4 and 9, respectively, will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims (3 and 4; and 8 and 9) in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

[Note: It appears that claims 4 and 9 should have been dependent from claims 2 and 7, respectively.]

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

In addition, the USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), ANNEX IV, partly reads as follows:

First paragraph

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structure and computer programs which impart functionality when employed as a computer component. ...

Second paragraph

Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. ...

Section (a), second paragraph, beginning at line 7

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowery, 32 F.3d at 1583-84, 32 USPQ2d at 1035. ...

9. Claims 16-18 are rejected under 35 U.S.C. 101 because the claimed inventions are directed to non-statutory subject matter as follows. Claims 16-18 each recites a *program* which, as recited above, is not statutory subject matter since it is not stored in a computer-readable medium.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-9, 11, 13, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herley (US 2002/0146173), and further in view of Tsukada (US 7,016,075).

12. Regarding claim 1, and similarly claims 2, 13 and 16, Herley discloses

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- a region segmentation device that segments a target image composed of a plurality of pixels into a plurality of image object regions by employing as boundaries portions where characteristics between the pixels change
[Fig. 1, ref. 102; Fig. 6; paragraphs 5, 14-18 and 51]

Herley does not expressly disclose the following, which is taught by Tsukada:

- an image correction device that corrects the pixel information of the pixels constituting the image object region based on region characteristic information indicating a representative characteristic of the image object region, for each of the image object region segmented by the region segmentation device
[Fig. 4; Col. 9, lines 12-29 & 44-45. Note that ref. 13 extract representative color (a characteristic) for an object (i.e., region) and that plural (obviously including all) objects can be selected for correction (Col. 9, lines 44-45). Note further that paragraphs 2-5 of Herley clearly suggest processing all segmented objects and color correction is a form of image processing]

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Herley with the teachings of Tsukada as recited above to obtain the invention as specified in claim 1. The reason for doing so would have been to realize excellent color correction to obtain color reproduction favorable to a human, as Tsukada indicates in Col. 1, lines 15-21 and Col. 2, lines 49-53.

13. Regarding claim 3, and similarly claims 4, 14 and 17, Tsukada further discloses

- a region characteristic calculation device that calculates the region characteristic information of the image object region based on the pixel information of the pixels constituting the image object region
[Fig. 4, ref. 13; Col. 9, lines 18-20]
- a correction function setting device that sets a correction function for correcting the pixel information of the pixels constituting the image object region based on the region characteristic information of the image object region calculated by the region characteristic calculation device
[Fig. 4, ref. 15 (correction function setting); Fig. 7; Col. 9, lines 22-26; Col. 10, lines 6-29 & 37-67. Note that each set of parameters determines a different (parameterized) correction function]
- a pixel information correction device that corrects the pixel information of the pixels constituting the image object region based on the correction function that was set by the correction function setting device
[Fig. 4, ref. 16; Col. 9, lines 27-30; Col. 10, lines 31-37]

14. Regarding claim 5, Tsukada further discloses that the correction function setting device maps the correction function with application conditions that define a plurality of the region characteristic information conditions [Figs. 6 & 7; Col. 10, lines 19-29] and retrieves the correction function corresponding to the application conditions that are satisfied by the region characteristic information from the plurality of correction functions based on the region characteristic information of the image object region [Fig. 8; Col. 10, lines 6-18].

15. Regarding claim 6, Tsukada further discloses that the correction function setting device retrieving the application conditions that satisfy the region characteristic information of the image object region based on a correction function table comprising a plurality of sets of the application conditions and the correction functions and retrieves the correction function constituting the set with the retrieved application condition [Fig. 7 & 8; Col. 10, lines 6-29; note that Fig. 7 is a correction function table and that the representative color of an object is its region characteristic information].

16. Regarding claim 7, Tsukada further discloses that the correction function setting device retrieving the application conditions to which the region characteristic information of the image object region corresponds, based on a correction function table that maps and registers a plurality of application conditions and correction functions, and retrieves the correction function corresponding to the retrieved application conditions [Fig. 7 & 8;

Col. 10, lines 6-29; note that Fig. 7 is a correction function table and that the representative color of an object is its region characteristic information].

17. Regarding claim 8, and similarly claim 9, Tsukada further discloses that the correction function setting device setting any one of the correction function table of a plurality of the different correction function tables with respect to one or a plurality of the image object regions and setting the correction function for correcting the pixel information of the pixels constituting the image object region based on the region characteristic information of the image object region and the correction function table that was thus set [Fig. 7 & 8; Col. 10, lines 6-29; note that Fig. 7 is a correction function table and that there is one such table for each object].

18. Regarding claim 11, note that per paragraph 18 of Herley a boundary pixel is sandwiched between two objects (note that background is by itself an object region); therefore claim 11 is rejected based on this disclosure and along with the analysis of claim 10 above

19. Claims 10, 12, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herley (US 2002/0146173) and Tsukada (US 7,016,075) as applied to claims 1-9, 11, 13, 14, 16 and 17 above, and further in view of Miyabata et al. (5,418,574).

Regarding claim 10, and similarly claims 15 and 18, Herley discloses all limitations of its parent, claim 1. Additionally, Herley further discloses detecting, based on prescribed region recognition conditions, as a boundary region, the pixel group which is the pixel group present on a boundary of the two adjacent image object regions. [Fig. 6; paragraphs 5, 18-21 and 51; especially paragraphs 18-19. Note that the determined background is considered an object itself.]

Herley does not expressly disclose that the boundary region also includes pixels in the vicinity of the boundary and is composed of the pixels having characteristics intermediate between the respective characteristics of the two image object regions. However, Miyabata discloses detecting such boundary regions. [Fig. 11a; Col. 22, lines 16- 32. Note that pixels from n1 and n2 are considered to be in the boundary region.]

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of Herley and Tsukada with the teachings of Miyabata as recited above to obtain the invention as specified in claim 10. The reason for doing so would have been to compensate for the unnatural emphasis on the contours resulted from color correction (such as by smoothing), as Miyabata indicates in Col. 20, lines 45-68.

20. Regarding claim 12, Miyabata further discloses

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- the correction function setting device correcting the pixel information of the pixels constituting the boundary region based on a first correction function which is the correction function set by the region characteristic information of the first image object region and a second correction function which is the correction function set by the region characteristic information of the second image object region, where the first image object region and second image object region are the two image object regions sandwiching the boundary region
[Figs. 8b (color correct region left of the boundary), 9b (color correct region right of the boundary), 11a & 25 (color correct boundary pixels); Col. 15, lines 32-62; Col. 17, lines 5-35; Col. 20, line 49- Col. 22, line 32. Note that pixels between (but not including) n1 and n2 are considered to be in the boundary area and n1 and n2 (belonging to two adjacent regions) are on either side of the boundary area (see Fig. 11a) that have already been color corrected (see 8b and 9b). Note further that equation on line 15 of column 21 corrects boundary pixels based on the values (which may or may not have been previously corrected) of pixels in two adjacent regions. Additionally, per the analysis of claim 1 Tsukada discloses color correcting different regions based on their region characteristics therefore the border pixel correction to thus corrected regions will be based on their corresponding correction functions]

Conclusion and Contact Information

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Park et al. (US 6,535,632) – discloses using edge points to segment an image [Fig. 2]
- Kashioka (US 2001/0033399) – discloses correcting values of border pixels by averaging over an 8x8 neighborhood [Fig. 7, paragraphs 126 & 136]
- Price (US 6,427,031) – discloses smoothing border pixels using 5x5 filter kernels [Fig. 6, ref. 100a; Col. 7, lines 1-30]
- Koike (US 5,408,338) – discloses correcting border pixels using pixels on both sides [Figs. 8-10; Col. 8, lines 3-35]

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yubin Hung
Patent Examiner
Art Unit 2624

October 18, 2007

A handwritten signature in black ink, appearing to read "Yubin Hung", is positioned below the typed name and above a horizontal line.